



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,414	02/27/2002	Joseph A. Kwak	I-2-0203.1US	8154
24374	7590	11/15/2004	EXAMINER TSEGAYE, SABA	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			ART UNIT 2662	

DATE MAILED: 11/15/2004 . .

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/084,414

Applicant(s)

KWAK, JOSEPH A.

Examiner

Saba Tsegaye

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 09/01/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed 8/9/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### *Double Patenting*

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 1-23 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-23 of copending Application No. 10/085,203. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2662

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-12 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/084,043. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-12 of the instant application merely broadens the scope of the claims 1-9 of the copending Application by eliminating the elements and their functions of the claims. It has been held that the omission an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184 (CCPA). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd.App.1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 2662

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 7, 8, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by

Schramm et al. (US 6,208,663).

Regarding claim 7, Schramm discloses, in Figs. 3 and 5, a physical automatic request repeat apparatus employed by a subscriber unit, comprising:

a transmitter having (RBS 22):

means for receiving data (a radio base stations 22);

means for formatting the received data into packets for transmission to the receiver, each packet having a particular encoding/data modulation (a radio base stations 22; column 5, lines 46-58);

means for transmitting the packets (column 5, lines 25-45);

means for retransmitting a packet, if an acknowledgment for that packet is not received (column 7, lines 39-53);

means for collecting retransmission statistics (column 7, lines 1-13); and

means for adjusting each particular data modulation using the collected retransmission statistics (column 7, lines 1-38); and

a receiver having (MS 12):

means for receiving packets (MS 12);

means for decoding and error checking each received packet (column 5, lines 46-column 6, line 11); and

means for generating an acknowledgment at the physical layer if that received packet has an acceptable error rate (column 7, lines 39-53).

Art Unit: 2662

Regarding claim 8, Schramm discloses the subscriber unit wherein the particular encoding/data modulation is forward error correction FEC encoding /data modulation (column 7, line 54-column 8, line 11).

Regarding claim 11, Schramm discloses the subscriber unit wherein the acknowledgments are transmitted on the fast feedback channel using a CDMA air interface (column 4, lines 49-56).

Regarding claim 12, Schramm discloses the subscriber unit further comprising at the receiver for each received packet transmitting a negative acknowledgment, if that packet has an unacceptable error rate (column 7, lines 39-45).

8. Claims 13-15 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Haartsen (US 6,021,124).

Regarding claim 13, Haartsen discloses, in Fig. 3, a network using a multi-channel ARQ method transmits data packets from a source 16 to a destination 18 over a communication link that is subdivided into a number of channels. Further, Haartsen, Fig. 4, discloses a MUX 22 (claimed a sequencer), a FIFO 28 (claimed n transmitters transmitting to their associated n receivers), a FIFO 29 (claimed n receivers for receiving return packets through the data channel), and a DE-MUX 26 (claimed n hybrid ARQ decoders, each coupled with one of the n receivers). Further, Haartsen describes that the network halts the multiplexing of new data packets at the source during a subsequent multiplexing round until the destination positively acknowledges

Art Unit: 2662

successful reception of a data packet and retransmit the data packets if no acknowledgement is received from the destination after a predefined time-out period.

Regarding claim 14, Haartsen discloses the subscriber unit wherein the  $n$  signal transmitters (a FIFO 28) each temporarily store a packet that has been transmitted in a buffer memory (column 7, lines 45-64); and

whereby each of the  $n$  transmitters (a FIFO 28) clear the stored packet in readiness for receipt of another block when an acknowledge signal for the stored packet has been received at one of the  $n$  receivers (a FIFO 29) (column 7, lines 45-64).

Regarding claim 15, Haartsen discloses the subscriber unit wherein the  $n$  transmitters (a FIFO 28) each temporarily store a packet that has been transmitted in a buffer memory; (column 7, lines 45-64); and

whereby the  $n$  transmitters (a FIFO 28) retransmits the packet temporarily stored in its buffer memory when an acknowledgement signal for the stored packet has not been received at one of the  $n$  receivers (a FIFO 29) (column 8, lines 1-11).

Regarding claim 23, Haartsen discloses the subscriber unit wherein the acknowledgments are transmitted on a fast feedback channel using a CDMA air interface (column 9, lines 18-21).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sipola (US 6,529,561) in view of Schramm et al. (US 6,208,663).

Regarding claim 1, Sipola discloses, in Figs. 2 and 5, a subscriber unit implementing physical layer automatic request comprising:

a transmitter having (260):

a physical layer transmitter for receiving data (270), formatting the received data into packets, each packet having a particular encoding/data modulation, transmitting the packets (202, 204) (column 10, lines 7-15; steps 500, 502), and retransmitting packets in response to not receiving a corresponding acknowledgment (234) for a given packet (column 10, lines 16-28);

an ACK receiver for receiving the corresponding acknowledgment (step 510; column 7, line 60-column 8, line 3); and

a receiver having (264):

a physical layer receiver for demodulating (210) the packets (column 10, lines 29-40);

a combiner/decoder (222, 218) for buffering, decoding and detecting packet errors (step 516; column 10, lines 54-60); and

an acknowledgment generator (224) for generating an acknowledgment for each packet, if that packet has an acceptable error rate (step 510; column 7, line 60-column 8, line 3).



Art Unit: 2662

However, Sipola does not expressly disclose collecting retransmission statistics and adjusting each particular encoding/data modulation using the collected retransmission statistics (as in claim 1); and a CDMA air interface (as in claim 5).

Schramm teaches that the radio base station RBS 22 counts the number of requests for retransmitted blocks and use alternative FEC coding and/or modulation scheme when the counted number of erroneously transmitted blocks exceeds some predetermined threshold (column 7, lines 1-12).

It would have been obvious to one ordinary skill in the art at the time of the invention was made add a collecting retransmission statistics method, such as that suggested by Schramm, in the method of Sipola in order to reduce the probability that the retransmitted block is received erroneously and improve overall system performance (column 4, lines 3-11).

Regarding claim 5, Schramm teaches an ARQ techniques use an alternative modulation/coding scheme using FDMA and CDMA air interface wherein the acknowledgments are transmitted on a fast feedback channel.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to use CDMA, such as that suggested by Schramm, in the radio transmission system of Sipola in order to minimize interference and to increase the capacity data throughput.

Regarding claim 2, Sipola discloses the subscriber unit wherein the particular encoding/data modulation is forward error correction FEC (column 2, line 29-37).

Art Unit: 2662

Regarding claim 6, Sipola discloses the subscriber unit whereby the acknowledgment generator transmits a negative acknowledgment, if any packet has an unacceptable error rate (column 7, line 60-column 8, line 3).

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schramm in view of Agee (US 6,128,276).

Schramm discloses all the claim limitations as stated above except for: the packets are transmitted using an OFDMA air interface in which frequency sub channels in an OFDMA set may be selectively nulled.

Agee teaches a radio communication method that is compatible with discrete multiple tone and orthogonal frequency-division multiplex-like frequency channelization techniques (column 4, line 19-column 5, line 40).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a method that transmit packets using an OFDMA air interface, such as that suggested by Agee, in the method of Schramm in order to allow stationary and linear channel distortion to be modeled as an exactly multiplicative effect on the transmit spreading code.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schramm in view of Birru (US 2002/0037058).

Schramm discloses all the claim limitations as stated above. Further, Schramm discloses that the invention is applied to all types of access methodologies including FDMA, TDMA, CDMA and hybrids thereof (column 4, lines 49-56). However, Schramm does not expressly

Art Unit: 2662

discloses wherein the packet are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

Birru teaches that a multi-standard demodulator, which includes COFDM, a frequency domain equalizer for single carrier results in a cost-effective solution compared to a time domain equalizer.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to use SC-FDE, such as that suggested by Birru, in the multi-access methodologies of Schramm in order to provide cost effectiveness and multi-path performance (0059).

13. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen (US 6,021,124) in view of Yonge, III et al. (US 6,522,650).

Haartsen discloses all the claim limitations as stated above except for each of the n transmitters clears its buffer memory if an acknowledge signal is not received after a maximum number of retransmissions (as in claim 16) and the maximum number of retransmissions is an operator defined integer having a range from 1 to 8 (as in claim 17).

Yonge illustrates, in Figs. 23 and 24, flow diagrams of a response resolve process performed by the frame transmit process of TX handler. Further, Yonge teaches that the process 444 determines if the NACK-count is greater than the NACK-count threshold (in this example, a threshold of 4). If the NACK-count is determined to be greater then the threshold of 4, then the frame is discarded (column 26, line 60-column 27, line 41).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a retransmission counter and a maximum number of retransmissions (1 to 8),

Art Unit: 2662

such as that suggested by Yonge, in the transmitter (FIFO) of Haartsen in order to avoid overflow.

14. Claims 18- 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Sipola (US 6,529,561).

Haartsen discloses all the claim limitations as stated above except for: receivers requiring a retransmission combines a retransmitted packet with an original transmitted packet to facilitate error correction (as in claims 18 and 20); and a transmitter failing to receive an acknowledge signal from an associated decoder encodes that packet employing a different encoding technique from an encoding technique employed in an original transmission of that packet (as in claim 19).

Regarding claims 18 and 20, Sipola discloses a receiver (264) that comprises means (222) for combining a received coded data block punctured by the first puncturing pattern and a received coded data block punctured by the second puncturing pattern.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a combiner, such as that suggested by Sipola, in the receiver of Haartsen in order to provide a sufficient dense rage of effective code rates to enable the code rate required by the channel conditions to be selected relatively accurately, which saves the valuable radio resource of the system (column 4, lines 26-30).

Regarding claim 19, Sipola teaches that the channel coder increases the code rate of the coded data block to be retransmitted by puncturing the coded data block coded by the channel coding of the original transmission by using a second puncturing pattern (column 3, lines 51-65).

It would have been obvious to one ordinary skill in the art at the time of the invention was made add a method that uses a different encoding technique when a transmitter failing to receive an acknowledge signal, such as that suggested by Sipola, in the encoding system of Haartsen in order to reduce the probability that the retransmitted block is received erroneously and improve overall system performance.

15. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Agee (US 6,128,276).

Haartsen discloses all the claim limitations as stated above except for: the packets are transmitted using an OFDMA air interface in which frequency sub channels in an OFDMA set may be selectively nulled.

Agee teaches a radio communication method that is compatible with discrete multiple tone and orthogonal frequency-division multiplex-like frequency channelization techniques (column 4, line 19-column 5, line 40).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a method that transmit packets using an OFDMA air interface, such as that suggested by Agee, in the method of Haartsen in order to allow stationary and linear channel distortion to be modeled as an exactly multiplicative effect on the transmit spreading code.

16. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Birru (US 2002/0037058).

Art Unit: 2662

Haartsen discloses all the claim limitations as stated above. Further, Haartsen discloses that the invention is applied to all types of access methodologies including FDMA, TDMA, CDMA and hybrids thereof (column 9, lines 15-20). However, Schramm does not expressly disclose wherein the packets are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

Birru teaches that a multi-standard demodulator, which includes COFDM, a frequency domain equalizer for single carrier results in a cost-effective solution compared to a time domain equalizer.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to use SC-FDE, such as that suggested by Birru, in the multi-access methodologies of Haartsen in order to provide cost effectiveness and multi-path performance (0059).

17. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sipola in view of Schramm et al. as applied to claim 1 above, and further in view of Agee.

Sipola in view of Schramm et al. discloses all the claim limitations as stated above except for: the packets are transmitted using an OFDMA air interface.

Agee teaches a radio communication method that is compatible with discrete multiple tone and orthogonal frequency-division multiplex-like frequency channelization techniques (column 4, line 19-column 5, line 40).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a method that transmit packets using an OFDMA air interface, such as that suggested by Agee, in the method of Sipola in view of Schramm in order to allow stationary and

Art Unit: 2662

linear channel distortion to be modeled as an exactly multiplicative effect on the transmit spreading code.

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sipola in view of Schramm et al. as applied to claim 1 above, and further in view of Birru (US 2002/0037058).

Sipola in view of Schramm discloses all the claim limitations as stated above. Further, Schramm discloses that the invention is applied to all types of access methodologies including FDMA, TDMA, CDMA and hybrids thereof. However, Sipola in view of Schramm does not expressly disclose wherein the packet are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

Birru teaches that a multi-standard demodulator, which includes COFDM, a frequency domain equalizer for single carrier results in a cost-effective solution compared to a time domain equalizer.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to use SC-FDE, such as that suggested by Birru, in the multi-access methodologies of Sipola in view of Schramm in order to provide cost effectiveness and multi-path performance (0059).

### ***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2662


Schenk et al. (US 6,647,076) discloses a method for the compensation of interference in a signal generated by discrete multitone modulation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST  
November 10, 2004



**JOHN PEZZLO**  
**PRIMARY EXAMINER**